

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
WATER QUALITY CONTROL COMMISSION

REGULATION NO. 34

CLASSIFICATIONS AND NUMERIC STANDARDS
FOR
SAN JUAN RIVER AND DOLORES RIVER BASINS

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REGULATION NO. 34

CLASSIFICATIONS AND NUMERIC STANDARDS SAN JUAN RIVER AND DOLORES RIVER BASINS

34.1 AUTHORITY

These regulations are promulgated pursuant to section 25-8-101 et seq. C.R.S., as amended, and in particular, 25-8-203 and 25-8-204.

34.2 PURPOSE

These regulations establish classifications and numeric standards for the San Juan and the Dolores River Basins, including all tributaries and standing bodies of water south of the northern Dolores County lines, as indicated in section 34.6. The classifications identify the actual beneficial uses of the water. The numeric standards are assigned to determine the allowable concentrations of various parameters. Discharge permits will be issued by the Water Quality Control Division to comply with basic, narrative, and numeric standards and control regulations so that all discharges to waters of the state protect the classified uses. (See Regulation No. 31 section 31.14). It is intended that these and all other stream classifications and numeric standards be used in conjunction with and be an integral part of Regulation No. 31 Basic Standards and Methodologies for Surface Water.

34.3 INTRODUCTION

These regulations and tables present the classifications and numeric standards assigned to stream segments listed in the attached tables (See section 34.7). As additional stream segments are classified and numeric standards for designated parameters are assigned for this drainage system, they will be added to or replace the numeric standards in the tables in section 34.7. Any additions or revisions of classifications or numeric standards can be accomplished only after public hearing by the Commission and proper consideration of evidence and testimony as specified by the statute and the "basic regulations".

34.4 DEFINITIONS

See the Colorado Water Quality Control Act and the codified water quality regulations for definitions.

34.5 BASIC STANDARDS

(1) All waters of the San Juan/Dolores River Basin are subject to the following standard for temperature. (Discharges regulated by permits, which are within the permit limitations, shall not be subject to enforcement proceedings under this standard). Temperature shall maintain a normal pattern of diurnal and seasonal fluctuations with no abrupt changes and shall have no increase in temperature of a magnitude, rate, and duration deemed deleterious to the resident aquatic life. Generally, a maximum 3°C increase over a minimum of a four-hour period, lasting 13 hours maximum, is deemed acceptable for discharges fluctuating in volume or temperature. Where temperature increases cannot be maintained within this range using Best Management Practices (BMP), Best Available Technology Economically Achievable (BATEA), and Best Practical Waste Treatment Technology (BPWTT) control measures, the Commission may determine by a rulemaking

hearing in accordance with the requirements of the applicable statutes and the basic regulations, whether or not a change in classification is warranted.

(2) ORGANICS

See Basic Standards and Methodologies for Surface Water 31.11 for a listing of organic standards. The column in the tables headed "Water + Fish" are presumptively applied to all aquatic life class 1 streams which also have a water supply classification, and are applied to aquatic life class 2 streams which also have a water supply classification, on a case-by-case basis as shown in the Tables 34.7. The column in the tables at 31.11 headed "Fish Ingestion" is presumptively applied to all aquatic life class 1 streams which do not have a water supply classification, and are applied to aquatic life class 2 streams which do not have a water supply classification, on a case-by-case basis as shown in Tables 34.7.

(3) URANIUM

- (a) All waters of the San Juan/Dolores River Basin, are subject to the following basic standard for uranium, unless otherwise specified by a water quality standard applicable to a particular segment. However, discharges of uranium regulated by permits which are within these permit limitations shall not be a basis for enforcement proceedings under this basic standard.
- (b) Uranium level in surface waters shall be maintained at the lowest practicable level.
- (c) In no case shall uranium levels in waters assigned a water supply classification be increased by any cause attributable to municipal, industrial, or agricultural discharges so as to exceed 40 pCi/l or naturally-occurring concentrations (as determined by the State of Colorado), whichever is greater.
- (d) In no case shall uranium levels in waters assigned a water supply classification be increased by a cause attributable to municipal, industrial, or agricultural discharges so as to exceed 40 pCi/l where naturally-occurring concentrations are less than 40 pCi/l.

(4) TRIBALLY-OWNED LANDS

Some of the waterbodies in the San Juan/Dolores River Basin cross boundaries of Indian Reservations of the Southern Ute and Ute Mountain Ute Tribes. The Commission has included water quality classifications and standards on lands within the boundaries of these reservations in agreement with the Southern Ute and Ute Mountain Ute Indian Tribes in order to avoid a gap in the classifications and standards adopted for the river basins in question, since these Tribes have not yet been granted authority by EPA to conduct their own water quality program. The Commission intends that the classifications and standards that it is adopting apply to the lands in question only to the extent that the state has jurisdiction and is not attempting to resolve that jurisdictional issue here. Segments within Reservation boundaries are noted in the segment description and last column of Tables 34.7.

34.6 TABLES

(1) Introduction

The numeric standards for various parameters in the attached tables were assigned by the Commission after a careful analysis of the data presented on actual stream conditions and on actual and potential water uses.

Numeric standards are not assigned for all parameters listed in the tables attached to Regulation No. 31. If additional numeric standards are found to be needed during future periodic reviews, they can be assigned by following the proper hearing procedures.

(2) Abbreviations:

The following abbreviations are used in the attached tables:

ac	=	acute (1-day)
Ag	=	silver
Al	=	aluminum
As	=	arsenic
B	=	boron
Ba	=	barium
Be	=	beryllium
Cd	=	cadmium
ch	=	chronic (30-day)
Cl	=	chloride
Cl ₂	=	residual chlorine
CN	=	free cyanide
CrIII	=	trivalent chromium
CrVI	=	hexavalent chromium
Cu	=	copper
dis	=	dissolved
D.O.	=	dissolved oxygen
E.Coli	=	escherichia coli
F	=	fluoride
F.Coli	=	fecal coliforms
Fe	=	iron

Hg	=	mercury
mg/l	=	milligrams per liter
ml	=	milliliters
Mn	=	manganese
NH ₃	=	un-ionized ammonia as N(nitrogen)
Ni	=	nickel
NO ₂	=	nitrite as N (nitrogen)
NO ₃	=	nitrate as N (nitrogen)
OW	=	outstanding waters
P	=	phosphorus
Pb	=	lead
S	=	sulfide as undissociated H ₂ S (hydrogen sulfide)
Sb	=	antimony
Se	=	selenium
SO ₄	=	sulfate
sp	=	spawning
Tl	=	thallium
tr	=	trout
Trec	=	total recoverable
TVS	=	table value standard
U	=	uranium
ug/l	=	micrograms per liter
UP	=	use-protected
Zn	=	zinc

In addition, the following abbreviations were used:

Fe(ch)	=	WS(dis)
Mn(ch)	=	WS(dis)
SO ₄	=	WS

These abbreviations mean: For all surface waters with an actual water supply use, the less restrictive of the following two options shall apply as numerical standards, as specified in the Basic Standards and Methodologies at 31.11(6):

(i) existing quality as of January 1, 2000; or

(ii) Iron = 300 µg/l (dissolved)
Manganese = 50 µg/l (dissolved)
SO₄ = 250 mg/l

For all surface waters with a "water supply" classification that are not in actual use as a water supply, no water supply standards are applied for iron, manganese or sulfate, unless the Commission determines as the result of a site-specific rulemaking hearing that such standards are appropriate.

(3) Table Value Standards

In certain instances in the attached tables, the designation "TVS" is used to indicate that for a particular parameter a "table value standard" has been adopted. This designation refers to numerical criteria set forth in the Basic Standards and Methodologies for Surface Water. The criteria for which the TVS are applicable are on the following table.

TABLE VALUE STANDARDS
(Concentrations in ug/l unless noted)

PARAMETER ⁽¹⁾	TABLE VALUE STANDARDS ⁽²⁾⁽³⁾
Ammonia	Cold Water Acute = $0.43/FT/FP/2^{(4)}$ in mg/l Warm Water Acute = $0.62/FT/FP/2^{(4)}$ in mg/l
Cadmium	Acute = $(1.13667 - [(\ln \text{hardness}) * (0.04184)]) * e^{(1.128[\ln(\text{hardness})] - 3.6867)}$ Acute(Trout) = $(1.13667 - [(\ln \text{hardness}) * (0.04184)]) * e^{(1.128[\ln(\text{hardness})] - 3.828)}$ Chronic = $(1.10167 - [(\ln \text{hardness}) * (0.04184)]) * e^{(0.7852[\ln(\text{hardness})] - 2.715)}$
Chromium III ⁽⁵⁾	Acute = $e^{(0.819[\ln(\text{hardness})] + 2.5736)}$ Chronic = $e^{(0.819[\ln(\text{hardness})] + 0.5340)}$
Chromium VI ⁽⁵⁾	Acute = 16 Chronic = 11
Copper	Acute = $e^{(0.9422[\ln(\text{hardness})] - 1.7408)}$ Chronic = $e^{(0.8545[\ln(\text{hardness})] - 1.7428)}$

Lead	Acute= $(1.46203 - [\ln(\text{hardness}) * (0.145712)]) * e^{(1.273[\ln(\text{hardness})] - 1.46)}$
	Chronic= $(1.46203 - [\ln(\text{hardness}) * (0.145712)]) * e^{(1.273[\ln(\text{hardness})] - 4.705)}$
Manganese	Acute= $e^{(0.3331[\ln(\text{hardness})] + 6.4676)}$
	Chronic= $e^{(0.3331[\ln(\text{hardness})] + 5.8743)}$
Nickel	Acute= $e^{(0.846[\ln(\text{hardness})] + 2.253)}$
	Chronic= $e^{(0.846[\ln(\text{hardness})] + 0.0554)}$
Selenium ⁽⁶⁾	Acute = 18.4
	Chronic = 4.6
Silver	Acute= $\frac{1}{2}e^{(1.72[\ln(\text{hardness})] - 6.52)}$
	Chronic = $e^{(1.72[\ln(\text{hardness})] - 9.06)}$
	Chronic(Trout) = $e^{(1.72[\ln(\text{hardness})] - 10.51)}$
Uranium	Acute= $e^{(1.1021[\ln(\text{hardness})] + 2.7088)}$
	Chronic= $e^{(1.1021[\ln(\text{hardness})] + 2.2382)}$
Zinc	Acute= $e^{(0.8473[\ln(\text{hardness})] + 0.8618)}$
	Chronic= $e^{(0.8473[\ln(\text{hardness})] + 0.8699)}$

TABLE VALUE STANDARDS - FOOTNOTES

- (1) Metals are stated as dissolved unless otherwise specified.
- (2) Hardness values to be used in equations are in mg/l as calcium carbonate and shall be no greater than 400 mg/L. The hardness values used in calculating the appropriate metal standard should be based on the lower 95 per cent confidence limit of the mean hardness value at the periodic low flow criteria as determined from a regression analysis of site-specific data. Where insufficient site-specific data exists to define the mean hardness value at the periodic low flow criteria, representative regional data shall be used to perform the regression analysis. Where a regression analysis is not

appropriate, a site-specific method should be used. In calculating a hardness value, regression analyses should not be extrapolated past the point that data exist.

- (3) Both acute and chronic numbers adopted as stream standards are levels not to be exceeded more than once every three years on the average.

(4) $FT = 10^{0.03(20-TCAP)}$;
Where TCAP is $\leq T \leq 30$

$FT = 10^{0.03(20-T)}$;
Where $0 \leq T \leq TCAP$

TCAP = 20° C cold water aquatic life species present

TCAP = 25° C cold water aquatic life species absent

FPH = 1; Where $8 < \text{pH} \leq 9$

$FPH = 1 + \frac{10^{(7.4-\text{pH})}}{1.25}$;
Where $6.5 \leq \text{pH} \leq 8$

FPH means the acute pH adjustment factor, defined by the above formulas.

FT Means the acute temperature adjustment factor, defined by the above formulas.

T means temperature measured in degrees celsius.

TCAP means temperature CAP; the maximum temperature which affects the toxicity of ammonia to salmonid and non-salmonid fish groups.

NOTE: If the calculated acute value is less than the calculated chronic value, then the calculated chronic value shall be used as the acute standard.

- (5) Unless the stability of the chromium valence state in receiving waters can be clearly demonstrated, the standard for chromium should be in terms of chromium VI. In no case can the sum of the instream levels of Hexavalent and Trivalent Chromium exceed the water supply standard of 50 ug/l total chromium in those waters classified for domestic water use.
- (6) Selenium is a bioaccumulative metal and subject to a range of toxicity values depending upon numerous site-specific variables.